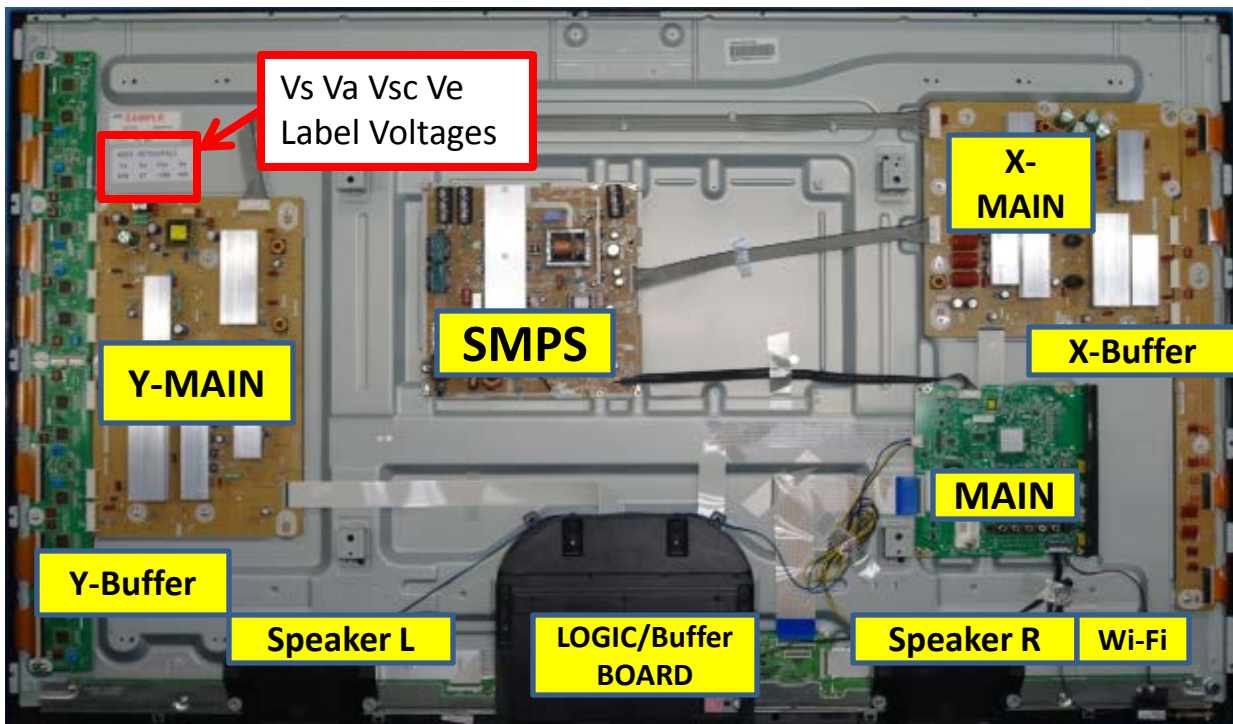




HELP : 888-751-4086; 866-894-0637 FE)

GSPN

<http://gspn3.samsungsportal.com>

PLUS ONE

<http://my.plus1solutions.net/clientPortals/samsung>

HOT TIPS

- New 2012 Model... always check for latest bulletins and firmware updates.
- New combined Logic/Logic Buffer Board.
- New Pentile Panel (60 inch only)

FIRMWARE

6/8/12 T-MST10PAUSC
6/2/12 T-MST10PAUSC Version 1013.3 resolves compatibility with DLNA devices.

Avail on GSPN or Samsung,Com

Always check for latest updates

Jog
Func.

SERVICE BULLETINS

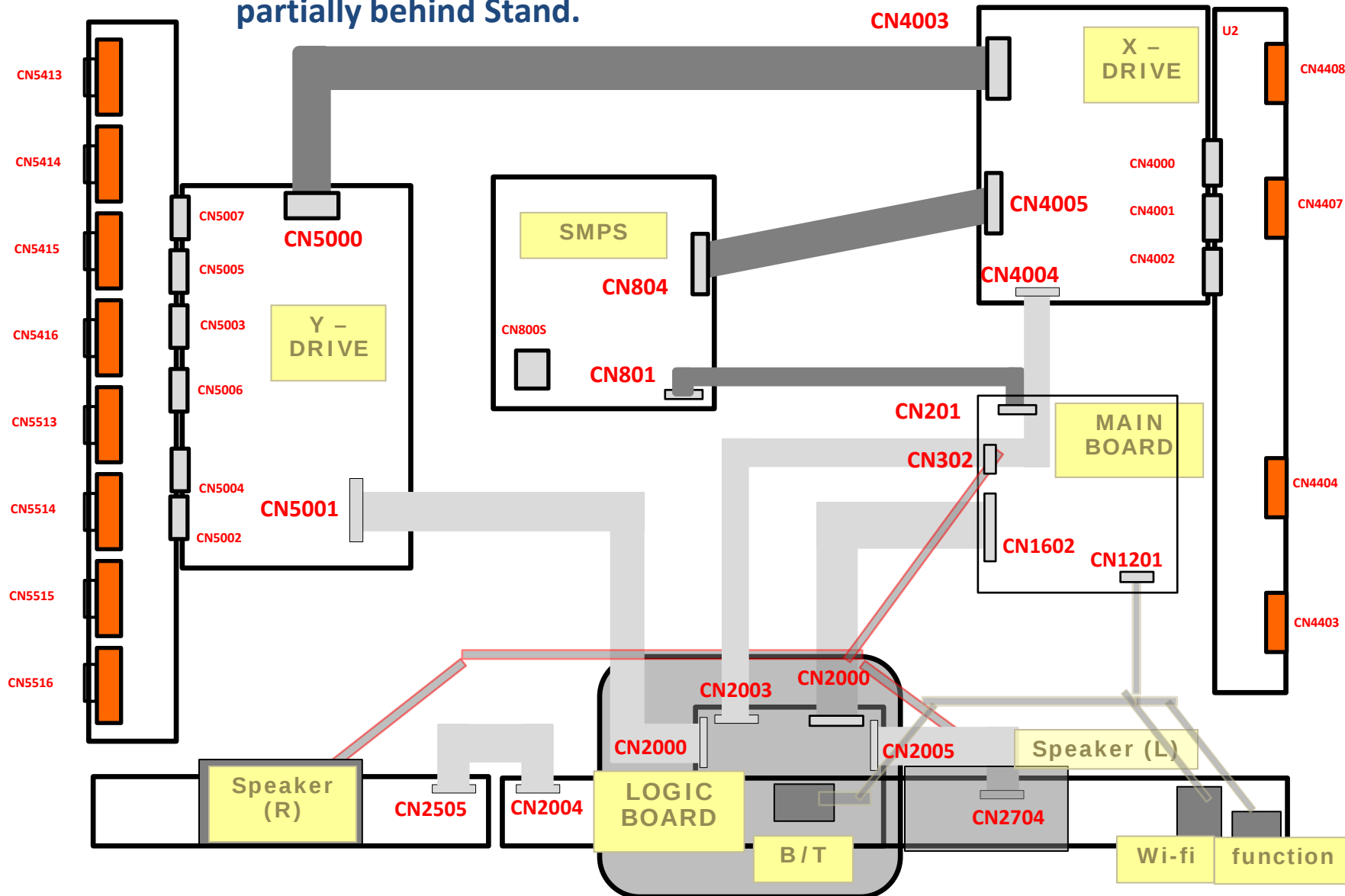
-6/6/12 ASC20120606001: Improve Eco Sensor, replace Function Board & Upgrade Firmware

-5/16/12 ASC20120515001: How to send TV's emergency data WD & AR data to SEA

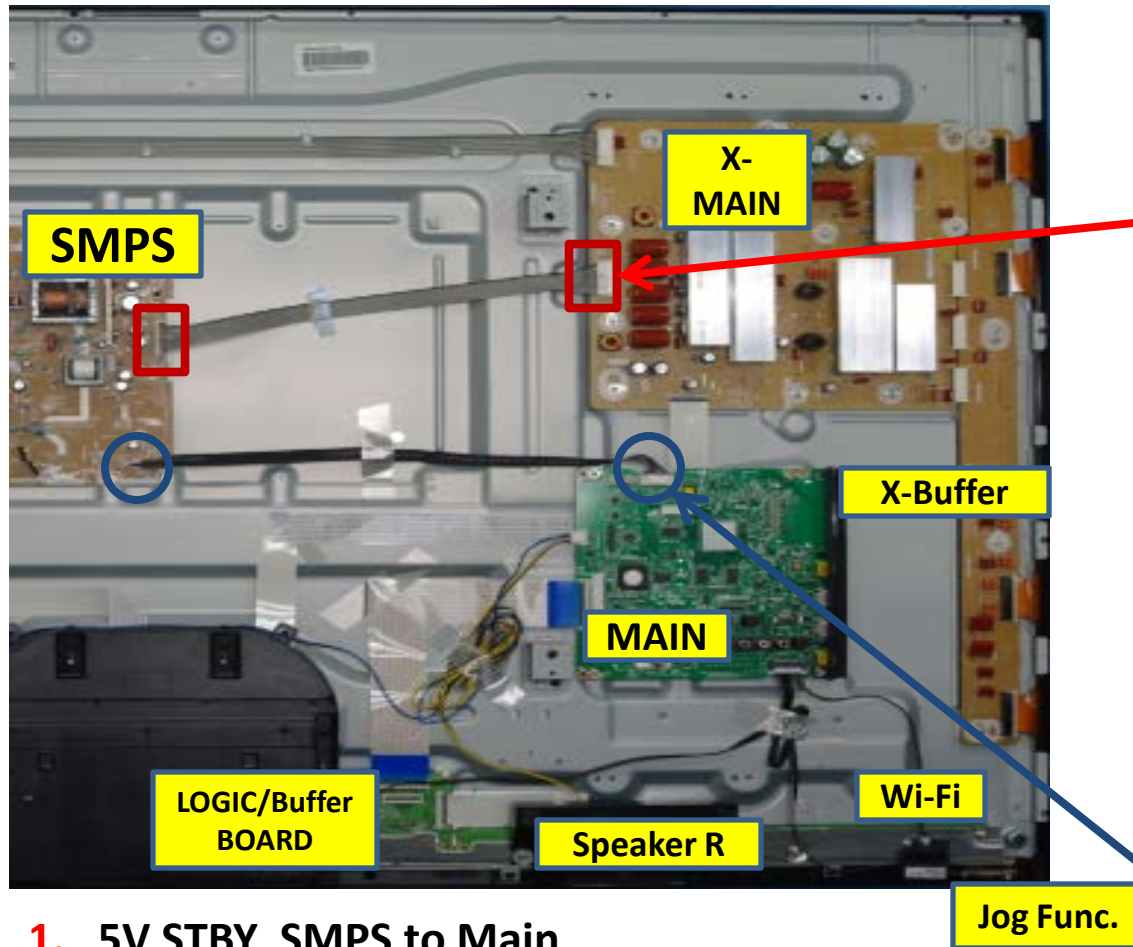
- **Quick Parts: Verify before Ordering**

No	Parts	Version	Parts No	Short
1	PCB	TS02	BN44-00512A	SMPS
2	PCB	TS02	BN94-04644D	Main PCB
3	PCB	TS02	BN96-21431C	RF module PCB
4	PCB	TS02	BN96-21749C	Function PCB
5	PCB	TS02	BN96-22111A	Logic Main PCB
6	PCB	TS02	BN96-22112A	Buffer E
7	PCB	TS02	BN96-22113A	Buffer G
8	PCB	TS02	BN96-22114A	X Main
9	PCB	TS02	BN96-22115A	Y Main
10	PCB	TS02	BN96-22116A	X upper
11	PCB	TS02	BN96-22117A	Y - Upper
12	PCB	TS02	BN96-22118A	Y - Lower
13	Display	TS02	BN96-22102A	Panel
14	Cosmetic	TS02	BN96-16795A	Stand Base
15	Cosmetic	TS02	BN96-18641A	Stand Guide
16	Cosmetic	TS02	BN96-21995A	Front Cover
17	Cosmetic	TS02	BN96-22001J	Rear Cover
18	Cosmetic	TS02	BN96-22004A	Stand Guide
19	Compone	TS02	3903-000552	Power Cord
20	Compone	TS02	AA59-00579A	Remote
21	Compone	TS02	BN96-21672D	Speaker
22	Compone	TS02	BN96-22728D	LVDS Cable
23	Accessory	TS02	4301-000103	Battery
24	Accessory	TS02	BN63-02368B	Cleaning Cloth
25	Accessory	TS02	BN81-07013A	3D Glasses

**Logic/Buffer Board combined & located
partially behind Stand.**



PN60E550 Power On Sequence



1. 5V STBY SMPS to Main
2. PS_ON Main to SMPS (all Low Voltages on)
3. PS_ON SMPS thru X-Board to Logic Board
4. VS_ON Logic Board thru X-Board to SMPS (VS & VA voltages turned on)

CN804 SMPS to CN4005 X Main

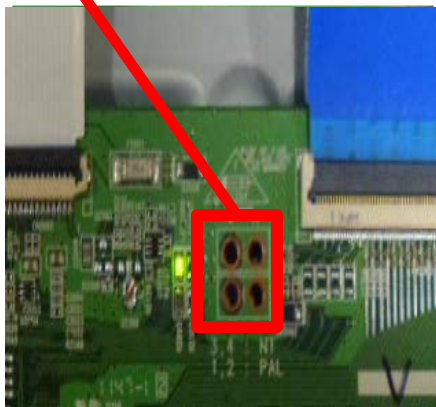
Pin No.	Signal
1	Vs
2	Vs
3	GND
4	Va
5	GND
6	15V
7	5V
8	GND
9	VS_ON
10	VS_CON
11	PS_ON
12	GND

CN801 SMPS to CN201 Main

Pin No.	Signal
1	PS_ON
2	STBY
3	GND
4	VAMP
5	GND
6	GND
7	GND
8	D5.2V
9	GND
10	15V
11	15V
12	D5.2V

Activating Power & Logic Board Test Patterns without Main Board:

1. Remove Power Cord to Panel
2. Short Highest 2 Pin #s on Logic Board Test Jig (Can be 4 Pin or 6 Pin)



3. Remove Power Connector at Main Board (keeping connection to SMPS)
4. Short "Power On" Pin to Circuit Ground on Power Connector to SMPS.
5. Connect Power Cord to Panel



Fast Track Troubleshooting Manual

60ES (NTSC/PAL)				
Vs	Va	Vsc	Ve	
219	55	-200	114	

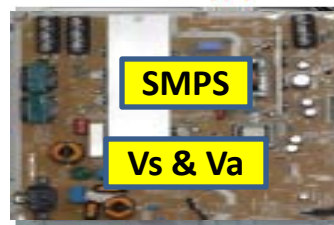
1. Record Panel Label

2. Check & Adjust VS

3. Check & Adjust VA



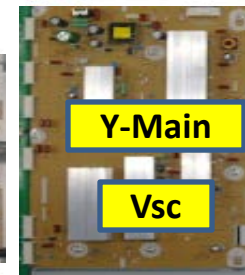
SMPS Power Supply Board



4. Check & Adjust Vsc (Vscan)



Y-Main Board



5. Check & Adjust VE



X-Main Board



VITAL SIGNS check Vs, Va, Vsc & Ve

When troubleshooting, It's very important to first check **Vs, Va, Vsc & Ve**. If **Vs** is missing (0V), disconnect power and check for short. Use ohm meter to measure resistance while disconnecting Y-Board & X-Board supply feeds one at a time.

Turn Power On and Test SMPS with short connector removed for correct Vs voltage verification. (It may only come up briefly but to full level). Again be careful not to reconnect Power Connectors until Vs falls below 10V.

If **Va** is low or missing, disconnect Supply Feed to Address Boards and Check to see if SMPS Supply is restored. (Note Va feed normally passes through the Y-Drive to the Address Boards (Logic Buffer Boards)).

If **Vsc** is low or missing and Vs was OK, the failure is with the **Y-Board** since the Y-Board generate the Vsc voltage from the Vs supplied by the SMPS.

If **Ve** is low or missing and Vs is OK, the failure is with the **X-Board** since the Ve is generated by the X-Board from the Vs supplied by the SMPS. Please note in some rare cases the Ve may be generated by the Y-Board feed to the X-Board.)

Other SMPS Voltages:

Check Low Voltage feeds to the Main Board and other supplied Assemblies.

Power Supply Trouble Shooting Notes:

2010/2011/2012 models

Will not be run with the "X" or "Y" main disconnected. The SMPS will shut down immediately. However if a meter is first connected to the test point when power is applied it will read the correct voltage briefly before shutting down. (You have enough time to check key voltages)

CAUTION: Do not reconnect any connectors to SMPS or Y/X Boards until power has been turned off long enough for Vs to drop below 10V or damage will occur to X or Y Boards.

Over Current Protection

For the SMPS Power Supply... If a short circuit occurs on either the VS or VA voltage lines, the SMPS stops operating, but should not fail. When the short circuit is removed from the source line, the Power Supply will operate normally again. **Many SMPS Supplies are replaced needlessly!**

Function Control Troubleshooting

5 Directional Function Control

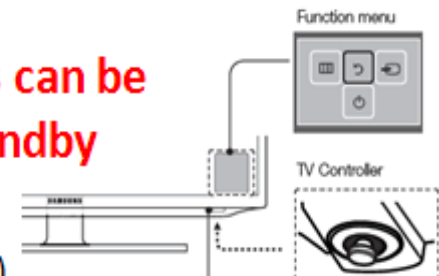
UNEH4000 Sample



CN702 (FUNCTION)			
1	IR	5	MSDA
2	GND	6	KEY1
3	A3.3V	7	KEY2
4	MSCL	8	GND

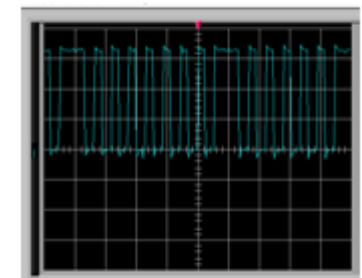
All Functions can be Tested in Standby Mode

(Standby Voltage)



Command	PIN	Signal	DC Voltage/Notes
IR	1	IR	3.3V to 2.5V DC with any Remote Control Commands
Press	6	Key 1	3.3V to 0.0V DC
Left	7	Key 2	3.3V to 1.6V DC
Right	7	Key 2	3.3V to 2.5V DC
Up	7	Key 2	3.3V to 0.0V DC
Down	7	Key 2	3.3V to 0.8V DC

Actual IR Signal



4V P-P Data

✓ Standby **A3.3V** on Function Connector, Pin 3.

✓ All Pins should read **3.3V** before commands.

✓ **Press**, at Key 1, Pin 6. 3.3V to 0.0V DC

✓ **Left, Right, Up, Down** at Key 2, Pin 7. Check **specific voltages** on chart.

TROUBLESHOOTING VIDEO PROBLEMS

2012 PDP Signal Path for Troubleshooting

1. Verify Video Operation:

- Customer Picture Test
- "Display"
- If display & Customer Picture Test are OK source is suspected
- Substitute with known good source and cabling.

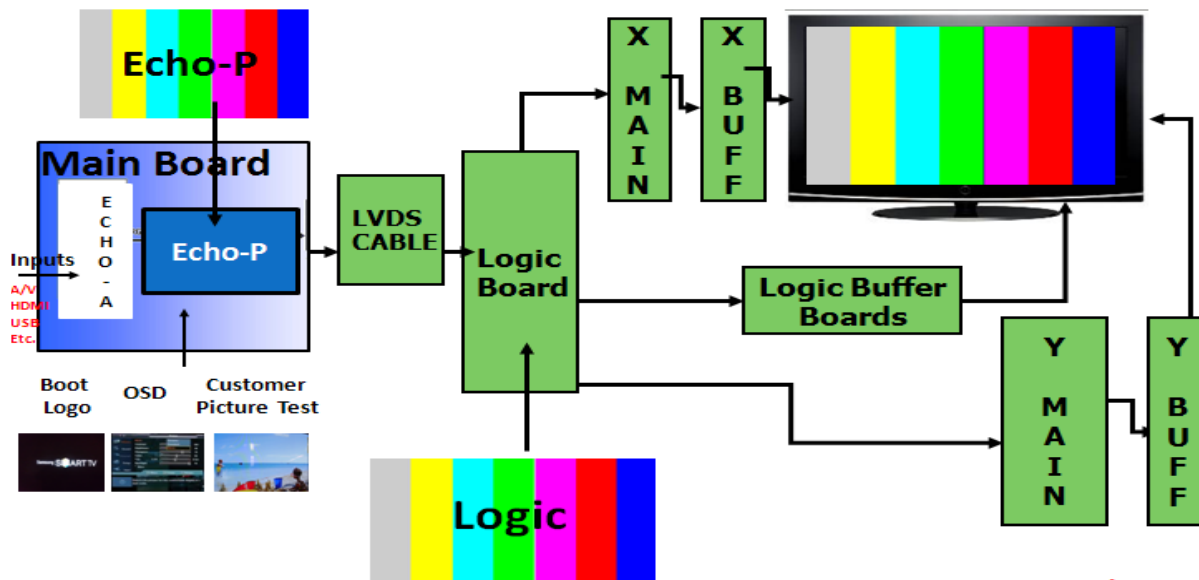
2. Using Test Patterns in Service Mode:

Customer Remote

- Power off
- Mute, 182, Power

Factory Remote:

- Power On
- Info, Test



3. Verify Echo-P Patterns

4. Verify Logic Patterns

If Logic Patterns are OK and Echo-P are noisy, replace the defective LVDS Cable or Main Board.

If Echo-P and Logic Patterns are both noisy, check for specific on screen noise error to determine failure. (next slide)

LOGIC Pattern Sel	13
LOGIC Level Sel	255
EchoP Pattern Sel	0
Echo-FP Pre Test Pattern	0
Echo-FP Post Test Pattern	0

Main Board Patterns Test
Select: EchoP Pattern Sel

LOGIC Pattern Sel	13
LOGIC Level Sel	255
EchoP Pattern Sel	0

Logic Board Patterns Test
Select: LOGIC Pattern Sel

(PNXXE8000 Sample)



ON SCREEN FAILURE EXAMPLES:

NOTE: X/Y MAIN Combined.

"Y" Board Failure Examples

Notice how each error contains a horizontal line

These examples show Y board errors, because the Y electrodes run horizontally, errors can often be seen across the screen.

2010 & 2011 Y board errors will be detected by the Logic Board and often create a High Voltage Power Down ("VS ON" to Off) condition.

When failure exists on either the Y-Board or the Y-Buffer Boards, be sure to replace both assemblies. A failure on either Board can create a failure on both assemblies.

Y Buffer Boards Failures

Y-Buffer Failures will often show blown Scan ICs & will create either Panel Power Down

Or

On Screen Errors across the screen as shown in examples

Upper Y Buffer Error

Lower Y Buffer Error

Two Output Lines on Scan IC Are open or connector to Panel is open.

Bottom 2 Scan ICs affected. (12 ICs total = 1/6 of video)

"X" board Failure Examples

- In this left screen example, the sustain signal from the X board is low or missing.
- For 2009 Models and Older: Verify operation of the X board by disconnecting the power supply cable to the X board. If the other boards are working the picture will be dark.
- If the X-Board Power or Y-Board Power is removed, however, on 2010 or 2011 Models, an error will be detected and the VS Supply from the SMPs will be turned off by the Logic Board. A Black Screen (on right) will occur.

"X" board Failure Examples

4-7 polar bar shadow

4-7 polar bar shadow

- In this example the Ve Initialize signal is low or missing creating image retention. No Erasing.
- Troubleshoot the X Board by verifying that the Ve Voltage is correct with the label on the Panel.

Logic Board Failure Examples

Screen vertical Noise Errors usually in Multiple Locations

The examples show the panel illuminated but displays with incorrect noisy video.

Logic Buffer Board Failure Examples

Normal Video Screen with added Vertical Black, Red, Green, or Blue Bar Errors

The examples show the panel illuminated, display is Normal except for area of Logic Buffer Board Failure.

Main Board Failure Symptoms

- Main Board errors are similar to logic errors but the problem can be on a single source such as the tuner.
- If the Menu also shows the defect the main board is suspected

PDP Panel Troubleshooting

Horizontal Error

Magnified View

Plasma Panel Failure Examples

- Plasma Panel failure can usually be identified by observation. Single sub pixel columns or rows that are black or white always are panel failures. Other lines or lines that vary with content are almost never panel failures. Individual pixel errors are almost always panel related.

ALIGNMENTS:

1. Check/Adj. VS, VA, VE, & VSC according to Panel Label and Diffusion test. (see bulletins for any special notes before making changes)



DIFFUSION TEST/ADJ. (cell miss-firing)

- Allow the unit to warm up 15 to 20 minutes
- Access the Burn Protect Sig. Pattern in Cust. Menu.
- Adjust the Vs volts until screen errors are gone in both dark and bright areas.
- Adjust the Vs volts within +/- 10V on the panel label.
- **NOTE: Diffusion may appear with aging panels.**
- **New panels with Diffusion consult bulletins and/or report problem.**

2. Check/Set Option Bytes:

Option

NOTE: Verify correct settings with latest tips!

Item	Data	Remark
Factory Reset	-	
Type	60DSArD	19A6TH0C ~ 22A6TF0E
Local Set	US	US ~ SA_BOLIVIA
Model	PD6900	LD400 ~ LD567H
Tuner	SI_ATC	SEC_ATSC ~ SI_TW
Front Color	W-Violet	S-C-Gray ~ W-Violet